

**U.S. FISH AND WILDLIFE SERVICE  
SPECIES ASSESSMENT AND LISTING PRIORITY ASSIGNMENT FORM**

SCIENTIFIC NAME: Arabis georgiana Harper

COMMON NAME: Georgia rockcress

LEAD REGION: 4

INFORMATION CURRENT AS OF: October 2005

STATUS/ACTION:

☐ Species assessment - determined species did not meet the definition of endangered or threatened under the Act and, therefore, was not elevated to Candidate status

☐ New candidate

☒ Continuing candidate

☐ Non-petitioned

☒ Petitioned - Date petition received: May 11, 2004

☐ 90-day positive - FR date:

☐ 12-month warranted but precluded - FR date:

☐ Did the petition request a reclassification of a listed species?

FOR PETITIONED CANDIDATE SPECIES:

a. Is listing warranted (if yes, see summary of threats below)? yes

b. To date, has publication of a proposal to list been precluded by other higher priority listing actions? yes

c. If the answer to a. and b. is "yes", provide an explanation of why the action is precluded. We find that the immediate issuance of a proposed rule and timely promulgation of a final rule for this species has been, for the preceding 12 months, and continues to be, precluded by higher priority listing actions (including candidate species with lower LPNs). During the past 12 months, almost our entire national listing budget has been consumed by work on various listing actions to comply with court orders and court-approved settlement agreements, meeting statutory deadlines for petition findings or listing determinations, emergency listing evaluations and determinations, and essential litigation-related, administrative, and program management tasks. We will continue to monitor the status of this species as new information becomes available. This review will determine if a change in status is warranted, including the need to make prompt use of emergency listing procedures. For information on listing actions taken over the past 12 months, see the discussion of "Progress on Revising the Lists," in the current CNOR which can be viewed on our Internet website (<http://endangered.fws.gov/>).

☒ Listing priority change

Former LP: 11

New LP: 8

Date when the species first became a Candidate (as currently defined): October 1, 1999

     Candidate removal: Former LP:     

     A - Taxon is more abundant or widespread than previously believed or not subject to the degree of threats sufficient to warrant issuance of a proposed listing or continuance of candidate status.

     U - Taxon not subject to the degree of threats sufficient to warrant issuance of a proposed listing or continuance of candidate status due, in part or totally, to conservation efforts that remove or reduce the threats to the species.

     F - Range is no longer a U.S. territory.

     I - Insufficient information exists on biological vulnerability and threats to support listing.

     M - Taxon mistakenly included in past notice of review.

     N - Taxon may not meet the Act's definition of "species."

     X - Taxon believed to be extinct.

ANIMAL/PLANT GROUP AND FAMILY: Flowering Plants- Brassicaceae

HISTORICAL STATES/TERRITORIES/COUNTRIES OF OCCURRENCE: Alabama, Georgia

CURRENT STATES/ COUNTIES/TERRITORIES/COUNTRIES OF OCCURRENCE:

Alabama (Bibb, Elmore, Russell, Wilcox counties); Georgia (Clay, Chattahoochee, Floyd, Gordon, Harris, Muscogee counties)

LAND OWNERSHIP: Three sites are located on federal land (two sites are on the Fort Benning Military Reservation in Chattahoochee County, GA and Russell County, AL; and one on Fort Toulouse/Jackson Park National Historical Site in Elmore County, AL). A four site in Wilcox County, AL may be under a Corps of Engineers easement area. Three sites in Georgia (Harris, Muscogee counties) are on Georgia Power Company land. All other populations are on private land, including several on property owned by The Nature Conservancy (Bibb County, AL; Floyd County, GA).

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LEAD FIELD OFFICE CONTACT: Jackson, Mississippi Field Office, Cary Norquist, 601/321-1128, cary\_norquist@fws.gov

BIOLOGICAL INFORMATION :

Species Description/Taxonomy

Georgia rockcress is a perennial herb up to 90 centimeters (cm) (35 inches (in.)) tall. The basal leaves are oblanceolate, rounded at the apex, toothed on the margins, 4 to 8 cm (2 to 3 in.) long, and with or without long, tapered petioles. The basal leaves usually persist through the fruiting season and have green lower surfaces. The stem leaves are alternate, lanceolate to narrowly elliptic, 1 to 5 cm (0.4 to 2.0 in.) long, and somewhat clasping around the stems. The upper surfaces of the stem leaves have stiff, branched hairs when young and are smoothish when mature. All leaves tend to be finely hairy. The flowers are borne in a terminal inflorescence that is somewhat loosely branched. There are four, white petals which measure 6 to 10 millimeters (mm) (0.2 to 0.4 in.) long. The fruit stands erect as a slender (1mm or 0.04 in. wide), relatively long (5 to 7 cm or 2 to 3 in.) pod that splits in two, leaving behind a thin, papery, lengthwise partition. Seeds are brownish, oblong, about 2 mm (0.1 in.) long, and are borne in single rows on each side of the partition. Flowering occurs from March to April, with fruiting beginning in May and into early July (Allison 1995, Patrick *et al.*).

Arabis georgiana was first collected in 1841 by Boykin from the vicinity of the Chattahoochee River in Georgia. Several other collections of this species were made in the late 1800's. However, Harper was the first to recognize its distinctiveness, after seeing it in fruit in 1901 on the bank of the Chattahoochee River in Stewart County, Georgia. Harper later described it as a distinct species in 1903 (Allison 1995). The Georgia rockcress was maintained as a distinct species in Hopkin's 1937 monograph of Arabis in the eastern U.S. (Allison 1995). Recently, most of the North American species of Arabis were transferred to the genus Boechera, however, Arabis georgiana was not one of the species transferred (Al-Shehbaz 2003).

### Habitat

Arabis georgiana grows in a variety of dry situations, including shallow soil accumulations on rocky bluffs, ecotones of gently sloping rock outcrops, and in sandy loam along eroding riverbanks. It is occasionally found in adjacent mesic woods, but it will not persist in heavily shaded conditions. This species is adapted to high or moderately high light intensities and occurs on soils which are circumneutral to slightly basic (Allison 1995, Allison *in litt.* 1999, Patrick *et al.* 1995).

### Life History

There is little information on the life history of this species. Moffett (*in litt.* 2005) reports that plants germinate easily from seed and reseed readily in a garden environment.

### Current and Historical Range

Populations of Arabis georgiana are known from the Gulf Coastal Plain, Piedmont, and Ridge and Valley physiographic provinces of Alabama and Georgia. Currently a total of 18 populations are known from four counties in Alabama (Bibb, Elmore, Russell, Wilcox counties) and six counties in Georgia (Clay, Chattahoochee, Floyd, Gordon, Harris, Muscogee counties).

A historical location from Stewart County, Georgia, has not been relocated despite repeated searches (Allison 1995, Allison in litt. 1999, Moffett in litt. 2005).

#### Population Status/Estimates

Extensive searches have been conducted for this species throughout these provinces in Alabama and Georgia for over 5 years (Allison 1995, Allison in litt. 1999). Arabis georgiana is rare throughout its range. Allison (1995) surveyed 205 sites over nine counties in Georgia and discovered only four new populations (a 2 percent success rate).

During surveys, Allison (pers. comm. 1999) found that populations of this species typically have a limited number of individuals restricted over a small area. Of the nine known populations in Georgia, six of them consist of only 3 to 25 plants, and the remaining three populations have 51 to 63 individuals (Allison 1995). The larger populations are primarily in the Ridge and Valley physiographic region of Alabama, particularly in Bibb County. Allison (in litt. 1999) originally documented this species at 18 sites (representing 7 populations) in Bibb County. However, one of these Bibb County populations was not relocated during surveys in 2001 (Allison pers. comm. 2002). Three of six currently-documented Bibb County populations have 5 to 20 plants, and the remaining Bibb County populations contain of 50, 83, and 180 plants, respectively. The remaining three Alabama populations, which occur in the Coastal Plain region of Alabama, have population sizes of 12, 24, and 51 plants (Allison in litt. 1999).

#### THREATS:

##### A. The present or threatened destruction, modification, or curtailment of its habitat or range.

One population of Arabis georgiana in Floyd County, Georgia, appears to be a surviving remnant of a once larger population. The primary habitat at this locality has been extensively quarried (Allison 1995). It is likely that other populations on rocky bluffs, in the Piedmont and Ridge and Valley provinces, were destroyed by quarrying or impoundments. Rock bluffs along rivers have also been favored sites for hydropower dam construction. The construction of a dam in Harris County, Georgia, destroyed a portion of suitable habitat for a population of Arabis georgiana and the current population there may also represent a remnant of a once much larger population (Allison 1995).

Habitat degradation, more than its outright destruction, is the most serious threat to this species' continued existence. Most of the Coastal Plain rivers surveyed by Allison (pers. comm. 1999) were considered unsuitable for Arabis georgiana because their banks had been disturbed to the point where there was no remaining vegetative buffer. Disturbance, associated with timber harvesting, road building, and grazing has created favorable conditions for the invasion of exotic weeds in this species' habitat (see Factor E).

##### B. Overutilization for commercial, recreational, scientific, or educational purposes.

Overutilization is not known to pose a threat to this species.

C. Disease or predation.

Allison (1995) observed plants damaged from grazing at one site (Allison 1995). However, disease and predation are not thought to be a significant threat to this species.

D. The inadequacy of existing regulatory mechanisms.

Arabis georgiana is listed as Threatened by the State of Georgia (Patrick *et al.* 1995). This State listing provides legal standing under the Georgia Wildflower Preservation Act of 1973. Georgia law prohibits the removal of this species from public land and regulates the taking and sale of plants from private land. The greater problem of habitat destruction and degradation is not addressed by this law. Arabis georgiana is considered endangered in Alabama but that state has no protective legislation for plants.

Only three populations are known to occur on federal land - two populations on the Fort Benning Military Reservation in Chattahoochee County, Georgia, and Russell County, Alabama, and one population on Fort Toulouse/Jackson Park National Historic Site in Elmore County, Alabama. Fort Benning is aware of the two sites on their property and protection is provided for these areas (Mark Horton, Fort Benning Military Reservation, pers. comm. 2004). Protection measures at Fort Toulouse are unknown at this time. All three sites are in need of active management to combat invasive plants (see Factor E.).

E. Other natural or manmade factors affecting its continued existence.

The primary threat to Arabis georgiana is the ongoing degradation of its habitat. Disturbance of most of the species' known sites has provided opportunities for the invasion of aggressive, non-native weeds, especially Japanese honeysuckle (Lonicera japonica). Arabis georgiana is not a strong competitor. It is usually found in areas where growth of other plants is restrained due to the shallowness of the soils or the pioneer status of the site (e.g., eroding riverbanks) (Allison 1995). However, non-native species are effectively invading these riverbank sites and the long-term survival of the five riverbank populations in the Coastal Plain province is questionable (Allison 1995). This species is only able to avoid competition with non-native species where the soil is limited (e.g., rocky bluffs).

Competition from non-native species, enhanced by adjacent land use changes, likely contributed to the loss of the population at the type locality in Stewart County, Georgia (Allison 1995) and possibly to one of the Bibb County, Alabama, populations (Allison pers. comm. 2002). Four additional populations are currently being negatively affected by competition with non-native plants. Japanese honeysuckle was observed growing on individual plants of Arabis georgiana at three sites. At a fourth site, plants growing in a mat of Nepalese browntop (Eulalia viminea) have declined in number from 17 individuals to a single plant (Allison 1995). Four other populations are imminently threatened by the nearby presence of non-native plants (Allison

1995, Allison in litt. 1999). Thus, 44 percent of the known populations (i.e., 8 of 18) are currently threatened by non-native species.

Populations of Arabis georgiana are healthiest in areas receiving full or partial sunlight. Those populations occurring in forested areas will decline as the forest canopy closes. Allison (in litt. 1999) attributed the decline of a population in Bibb County, Alabama, to canopy closure. In addition, the small number of individuals at the majority of the sites makes these populations vulnerable to local extinctions from unfavorable habitat conditions such as extreme shading.

One of the populations in Georgia is confined to a roadside right-of-way and is currently threatened by roadside maintenance such as mowing and herbicides (Hodges in litt. 2005).

#### CONSERVATION MEASURES PLANNED OR IMPLEMENTED

The Service funded a status survey on this species throughout its range in mid- 1990's. The Service's Candidate Conservation Program provided some funding in 2002 to initiate conservation measures for this species including gathering landowner information, development of site management plans for selected populations on public lands and implementation of non-native plant control. In Alabama, preliminary site visits were conducted in 2002, draft management plans were developed, and exotic removal was initiated at several sites (Schotz, Alabama Natural Heritage Program, pers. comm. 2003). In 2003 land ownership information was updated for the Alabama sites. Most of the Alabama sites were visited in the summer of 2004 (Schotz pers. comm. 2004). The Georgia sites were visited in 2005 (Moffett in litt. 2005).

#### SUMMARY OF THREATS:

Habitat degradation, more than outright habitat destruction, is the most serious threat to this species' continued existence. Disturbance, associated with timber harvesting, road building, and grazing has created favorable conditions for the invasion of exotic weeds, especially Japanese honeysuckle (Lonicera japonica), in this species' habitat. Eight populations are currently or potentially threatened by the presence of exotics. Populations near roadsides are threatened by roadside maintenance practices, particularly herbicides.

#### RECOMMENDED CONSERVATION MEASURES:

Revisit all sites and update status information; thoroughly survey habitat on public lands to document any new locations of the species; work with landowners, the state, and conservation agencies to develop protection/management plans for all sites, beginning with those located on public land; and implement management on all sites. Obtain additional funding to support surveys and continuation of restoration efforts on sites.

#### LISTING PRIORITY

THREAT			
Magnitude	Immediacy	Taxonomy	Priority
High	Imminent	Monotypic genus	1
		Species	2
		Subspecies/population	3
	Non-imminent	Monotypic genus	4
		Species	5
		Subspecies/population	6
<b>Moderate to Low</b>	<b>Imminent</b>	Monotypic genus	7
		Species	<b>8**</b>
		Subspecies/population	9
	Non-imminent	Monotypic genus	10
		Species	11
		Subspecies/population	12

Rationale for listing priority number:

**Magnitude:** The magnitude is not considered high because of the number of populations scattered across multiple counties in two states. Several populations are protected.

**Imminence:** The primary threat today consists of competition from exotics which is an insidious threat but such is currently affecting a number of the populations, thus the threat is considered imminent.

Rationale for Change in Listing Priority Number: The status of the species has not changed, however, the priority number is changed from 11 to 8 to more accurately reflect that the threats are ongoing, thus imminent.

Yes Have you promptly reviewed all of the information received regarding the species for the purpose of determining whether emergency listing is needed?

Is Emergency Listing Warranted? No. This species is not in imminent danger of becoming extinct. There are 18 populations over two states and several populations are secure. The major threat to this species is from exotics which is gradual.

**DESCRIPTION OF MONITORING:** Species experts, botanists with the state conservation programs, and affected Service field offices were sent copies of the most recent candidate form and asked to provide any new information on this species. Those contacted were as follows: Dr. Mincy Moffett, Georgia Department of Natural Resources (GADNR), Al Schotz of the Alabama Natural Heritage Program, the Service's Daphne, AL and Athens, GA field offices, and Jan Garrett of Alabama office of The Nature Conservancy were all contacted in September of 2005. Dr. Wayne Barger of the Alabama Heritage Program in the State Lands Division/Alabama

Department of Conservation and Natural Resources was contacted in October of 2005. Dr. Moffett also solicited information from Malcolm Hodges with the Georgia office of The Nature Conservancy that was sent directly to the Jackson Field Office.

No new populations were located in 2005. The Alabama sites were last visited in 2003. The Georgia sites were monitored in 2005 (Moffett in litt. 2005) utilizing funds from the Candidate Conservation Program. Funding obtained from Candidate Conservation Program has not been adequate to support annual monitoring on a regular basis.

#### COORDINATION WITH STATES

Indicate which State(s) (within the range of the species) provided information or comments on the species or latest species assessment: Georgia

Indicate which State(s) did not provide any information or comments: Alabama

#### LITERATURE CITED:

- Al-Shehbaz, I.A. 2003. Transfer of most North American species of Arabis to Boechera (Brassicaceae). Abstract. Novon 13:381-391.
- Allison, J.R. 1995. Status survey of Arabis georgiana Harper (Georgia rockcress) in Georgia. Unpublished report for the U.S. Fish and Wildlife Service. Jackson, MS. 18 pp. + appendices.
- Harper, R.M. 1903. A new Arabis from Georgia. Torreyia 3:87-88.
- Harper, R.M. 1904. A new station for Arabis georgiana. Torreyia 44:24-25.
- Harper, R.M. 1906. Notes on the distribution of some Alabama plants. Bull. Torr. Bot. Club 33:532.
- Hopkins, M. 1937. Arabis in eastern and central North America. Rhodora 39:63-98, 106-148, 155-186, plates 457-458.
- Patrick, T.S., J.R. Allison, and G.A. Krakow. 1995. Protected Plants of Georgia. Georgia Department of Natural Resources, Wildlife Resources Division, Social Circle. 246 pp.



APPROVAL/CONCURRENCE: Lead Regions must obtain written concurrence from all other Regions within the range of the species before recommending changes, including elevations or removals from candidate status and listing priority changes; the Regional Director must approve all such recommendations. The Director must concur on all resubmitted 12-month petition findings, additions or removal of species from candidate status, and listing priority changes.

Approve: /s/ Jeffrey M. Fleming 11/16/2005  
Acting Regional Director, Fish and Wildlife Service Date



Concur: \_\_\_\_\_ August 23, 2006  
Acting Director, Fish and Wildlife Service Date

Do Not Concur: \_\_\_\_\_  
Director, Fish and Wildlife Service Date

Date of annual review: October 2005

Conducted by: Jackson, Mississippi Field Office